# SOMATIC PAIN OF VISCERAL ORIGIN
## A CASE PRESENTATION

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**Abstract:** It is not uncommon, within general practice, for patients to present with somatic or musculoskeletal pain of visceral origin. Furthermore patients may present with two separate and co-existing conditions within the same anatomical region making the clinical diagnosis confusing and complex. The following case study describes one such case which presented to a chiropractor. A discussion of examination findings, initial type of musculoskeletal treatment administered, diagnostic dilemmas in such cases, differential diagnoses considered, diagnostic tests and appropriate therapy are discussed.

**Index Terms:** Chiropractic, spinal manipulative therapy, somato-visceral, viscero-somatic, renal disease, urinary tract infection.

### INTRODUCTION

It is not uncommon in general clinical practice, for patients to present with somatic pain of visceral origin, either as their sole presenting complaint or as part of their overall symptomatology. Numerous examples are described in the literature where visceral disease may manifest as, or mimic pain of musculo- skeletal dysfunction. Some of the more common examples are, left shoulder pain from coronary artery disease, low back pain from uterine cancer, and thoraco-lumbar pain of renal origin.(1,2,3,4,5,6)

The diagnostic problem that confronts the clinician is the differentiation between pain from visceral origin and that of somatic origin. This dilemma is mentioned by Mennell(1) who states:

> "It is characteristic that the mind cannot differentiate pain in the back from pain referred to the back from a visceral source through the visceral-somatic reflex. The reaction of the body is the same, namely, splinting of the spinal segment from which the pain is *apparently* arising."

Failure to recognise the visceral origin of the presenting musculoskeletal complaint has been reported to result in serious consequences for these patients, including death and unnecessary surgery(1,2).

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The following case history presents a common clinical presentation of somatic pain of visceral origin which is often incorrectly diagnosed.

### CASE REPORT

Mrs. I. C. a 43 year old secretary originally presented with acute right lower back pain and right anterior thigh pain, extending to the knee. Her family and personal medical history was unremarkable, within this context, except for a 4 to 5 year history of low back ache.

The onset of symptoms was insidious in nature, the day prior to presentation, and became progressively worse with the pain radiating from the right low back into the right anterior thigh. The pain was aggravated by sitting and relieved by lying supine with the hips in slight flexion.

Physical examination findings included, a right positive Kemp's test (trunk extension and lateral flexion combined), restricted and painful lumbar spine flexion, extension, and left rotation, positive right seated straight leg raise (SLR), reproducing her thigh pain, a positive right femoral nerve stretch test and a sluggish right patella reflex. Palpation of the lumbar spine revealed local tenderness and spasm, predominantly on the right, in the mid lumbar spine. Plain film X-ray examination revealed a mild levoscoliosis of the lumbar spine, convex to the left, anterior weight bearing posture, and moderate to advanced disc space narrowing at the L5/S1 level.

A provisional diagnosis of a right L3/4 disc lesion was made and the patient was treated with, hot moist packs, soft tissue massage, trigger point therapy, and chiropractic spinal manipulative therapy.

The patient's condition improved substantially after her first treatment and was treated similarly on the following day. However three days later she presented with acute right thoraco-lumbar spine pain with increased urinary frequency and urgency.

On questioning Mrs. I.C. stated that there was no pain on micturition, her bowel function was normal and there were no signs of fever, with her temperature measured at 36.5°.

Palpatory examination revealed acute tenderness in the right thoraco-lumbar region with a negative "rib manoeuvre"(2) and mild to moderate abdominal tenderness in the right upper quadrant. Orthopaedic examination revealed a restricted lumbar spine range of motion, similar to the pattern on her fist examination, with the exception of restricted and painful contralateral lateral flexion and full and painfree right lateral flexion. There was also a right positive femoral nerve stretch test and right positive seated straight leg raising. There was acute pain on the 'Punch Test"(3,) to the right costovertebral angle. Neurological testing showed no detectable motor or sensory deficit.

**DISCUSSION**

The signs and symptoms on this consultation although implicating urinary dysfunction, did not indicate whether the urinary symptoms were due to primary renal disease or as symptom of some spinal cord or nerve root lesion, or a somato-visceral reflex. Furthermore the possibility of two separate co-existing conditions, each contributing to the overall symptom complex had to be considered.

The possible differential diagnoses, considered by the author were:

1. Renal Disease with somatic referral.
2. Lumbar disc herniation producing partial cauda equina symptoms.
3. Thoracic disc herniation producing a spinal cord lesion above the level of the conus. (Reflex Neurogenic Bladder)
4. Metastatic disease of the spine from the renal system.
5. Spinal cord tumor or other space occupying lesion.
6. Somato-visceral reflex from a thoraco-lumbar or lumbar spine lesion.
7. A combination of any of the above conditions.

1. Renal Disease- Kidney and urinary tract infections may be accompanied by increased urinary frequency and urgency with or without an increase in body temperature. Other urinary symptoms include dysuria, haematuria, chills, incontinence and pyuria. There is often abdominal, back ,flank ,groin or buttock pain which may vary from mild to excruciating in intensity. Urinary tract infections are the second most common infections after respiratory infections.(7,8)

2. Cauda Equina Syndrome- Depending on the nerve roots involved and the level of compression symptoms may vary from flaccid paralysis of the lower limbs, absent reflexes, sensory disturbances, with typical saddle anaesthesia, and sphincteric paralysis.(9) Haldeman(10) reports on the rare incidence of cauda equina syndrome as a complication of spinal manipulative therapy (SMT), but notes that it represents one of the most serious complications and should always be considered. Stoddard(15) refers to 29 cases of urogenital dysfunction, including disturbances of micturition, in which there were no signs of cauda equina symptoms, yet the visceral symptoms subsided following surgical removal of these patients' disc protrusions.

3. Thoracic Disc Herniation- 80% of reported cases of thoracic disc herniation occur between the third and fifth decade with a peak incidence in the fourth decade and a 75% incidence below T8, with a peak at T11-12. It is further theorised that at these lower levels there is a greater potential for neurological complication.(11) Symptoms include, local muscle spasm, sensory loss, radiating pain into the chest and cord signs including altered sphincter function.(4) The conus medullaris lies at the level of L1 and lesions of the spinal cord above this level may result in Reflex Neurogenic Bladder which involves disturbances of urination.(9)

4. Metastatic disease from the kidney- Tumors may metastasise to the spine from malignant disease of practically any part of the body. One of the most common primary organs from which spinal metastases may arise is the kidney. The common symptoms of spinal metastases is pain which may mimic a herniated disc.(12) Discomfort from renal tumors is usually noted more in the flank(5) and in the most common renal neoplasm, Renal-cell Carcinoma, there is usually gross haematuria and a palpable abdominal mass.(13)

5. Spinal cord tumor or other space occupying lesion- Cyriax (14) cautions the clinician about thoraco-lumbar pain in which there is limited and painful active lateral flexion away from the side of pain, citing three personal experiences which involved either neoplasm of the viscera or intraspinal neuroma. Although it is usual for a space occupying lesion to involve the motor system first

and later the urinary system the possibility of a spinal cord tumor cannot be discounted.(9)

6. Somato-visceral reflex- The literature abounds with evidence of somato-visceral reflexes. Aspegren(3) quoting Suarez et al states ".....lumbar disease can itself produce significant bladder and sexual dysfunction...." Experimental studies by Sato et al(16) also attests to somatic stimulation resulting in altered bladder activity. Browning(17,18,19,20) in his four articles on low back pain and pelvic organ dysfunction refers to a the implication of mechanical disorders of the lumbar spine in the aetiology of neurogenically mediated pelvic organ dysfunction and states that the most common symptoms of this condition are increased urinary frequency, urgency, dribbling, difficulty, and sluggishness.

In order to reduce the number of possible diagnoses, the quickest, easiest ,and most cost effective investigation was urinalysis, as this would virtually eliminate the renal system as a primary symptom source. Urinalysis conducted in the office using "Dipstix" test strips indicated a urinary tract infection due the presence of haematuria and bacteriuria, thus explaining the onset of this patient's urinary and thoraco-lumbar symptoms.

In view of the positive "Dipstix" analysis the patient was referred to a medical practitioner who ordered a full laboratory urinalysis and culture and in the interim was prescribed antibiotics. The laboratory analysis confirmed haematuria with the presence of a high E. Coli count and traces of protein, confirming the diagnosis of urinary tract infection.

On review five days later the patient had no urinary dysfunction and was asymptomatic with regard to her musculoskeletal condition.

## CONCLUSION

Urinary tract infection is the second most common infection encountered in general practice, and unilateral thoracic spine pain is the most common symptom of vertebral or costovertebral joint dysfunction,(4) and it is often difficult for even the most astute clinician to differentiate between pain of a visceral origin and that of somatic origin.

Many patients with musculoskeletal pain complain of discomfort in the same location as patients with kidney pathologies, and discomfort around the T12-L1 level is commonplace in practice.(3)

This case history illustrates that a simple urinary tract infection is capable of a viscero-somatic reflex which can simulate pain of musculoskeletal origin and also that two separate conditions within the same anatomical region may co-exist thus confounding the clinical diagnosis. Clinicians should be cognisant of this fact when considering differential diagnoses. The importance of reassessing a case, should signs and symptoms continue or get worse is stressed as is the need for appropriate referral should symptoms indicate visceral pathology.

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